

1) (Twice Amended) A method of detecting degradation of a rope comprising a body of non-ferromagnetic insulator material in which a plurality of longitudinally extended ferromagnetic cord members is distributed transversely, the method comprising

~~applying~~ creating a partial magnetic field to circuit in a portion of the cord members by positioning a pair of magnetic poles adjacent to the body of the rope, wherein the poles are spaced longitudinally relative to the rope, so that the partial magnetic circuit runs from one of the magnetic poles longitudinally through the portion of the cord members to the other of the magnetic poles;

monitoring, at a position between the poles along a longitudinal direction of the rope, magnetic flux emanating from the cord members out through the body of the rope and associated with the ~~magnetic field~~ circuit; and

identifying, based on the magnetic flux monitored at the position between the poles, locations along the cord members exhibiting magnetic flux leakage, wherein the locations are indicative of degradation.

2) (Twice Amended) The method according to claim 1, wherein

the magnetic ~~field circuit~~ is applied ~~is applied~~ created by relative movement between the rope and the magnetic poles.

4) (Twice Amended) A method of detecting and locating degradation of a rope comprising a body of non-ferromagnetic insulator material in which a plurality of longitudinally extended ferromagnetic cord members is distributed transversely, the method comprising

causing the rope to move at a known rate relative to a pair of magnetic poles positioned adjacent to the body of the rope and spaced longitudinally relative to the rope in order to ~~apply~~ create a partial magnetic field to circuit in a portion of the cord members, the partial magnetic circuit running from one of the magnetic poles longitudinally through the portion of the cord members to the other of the magnetic poles;



monitoring, at a position between the poles along a longitudinal direction of the rope, magnetic flux emanating from the cord members out through the body of the rope and associated with the magnetic-field circuit as a function of time; and

identifying, based on the magnetic flux monitored at the position between the poles, points in time in which the cord members exhibit magnetic flux leakage, wherein the points in time are indicative of the location of rope degradation.

5) (Twice Amended) A method for approximating tension-load bearing capacity of a rope comprising a body of non-ferromagnetic insulator material in which a plurality of longitudinally extended ferromagnetic cord members is distributed transversely, the method comprising

~~applying creating a partial magnetic field to circuit~~ in a portion of the cord members by positioning a pair of magnetic poles adjacent to the body of the rope, wherein the poles are spaced longitudinally relative to the rope so that the partial magnetic circuit runs from one of the magnetic poles longitudinally through the portion of the cord members to the other of the magnetic poles;

measuring, at a position between the poles along a longitudinal direction of the rope, magnetic flux emanating from the cord members out through the body of the rope and associated with the magnetic-field circuit; and

comparing, based on the magnetic flux measured at the position between the poles, measured magnetic flux leakage to predetermined data indicative of tension-load bearing capacity.

6) (Twice Amended) A method of detecting and locating degradation of a rope comprising a body of non-ferromagnetic insulator material in which a plurality of longitudinally extended ferromagnetic cord members is distributed transversely, the method comprising



~~applying creating a partial magnetic field to circuit in a portion of the~~
cord members by positioning a pair of magnetic poles adjacent to the body of
the rope, wherein the poles are spaced longitudinally relative to the rope so that
the partial magnetic circuit runs from one of the magnetic poles longitudinally
through the portion of the cord members to the other of the magnetic poles;

monitoring, at a position between the poles along a longitudinal direction
of the rope, magnetic flux emanating from the cord members out through the
body of the rope and associated with the magnetic ~~field~~ circuit;

identifying, based on the magnetic flux monitored at the position between
the poles, locations along each individual cord member exhibiting magnetic flux
leakage, wherein the locations are indicative of degradation; and

correlating the locations indicative of degradation of individual cord
members with respect to each other to determine relative locations of each.

10) (Twice Amended) An apparatus for detecting degradation of a rope comprising a
rope body of non-ferromagnetic insulator material encasing at least one longitudinally
extended ferromagnetic component, the apparatus comprising

a detector body comprising rope guide means for guiding the rope along
the detector body;

a magnet fixed with respect to the body for ~~establishing~~ creating a partial
magnetic ~~field~~ circuit in a portion of the ferromagnetic component of the rope
that is adjacent to the detector body, the magnet comprising a pair of magnetic
poles located adjacent the rope body and spaced longitudinally relative to the
rope when the rope is guided along the detector body by the rope guide means
so that the partial magnetic circuit runs from one of the magnetic poles
longitudinally through the portion of the ferromagnetic component to the other
of the magnetic poles;

magnetic flux sensing means mounted with respect to the detector body
at a position between the poles for monitoring magnetic flux emanating from the



ferromagnetic component out through the rope body and associated with the magnetic field; and

means for correlating the magnetic flux with rope degradation.

11) (Twice Amended) The apparatus according to claim 10, wherein
the at least one longitudinally extended ferromagnetic component ~~the~~
~~rope~~ comprises a plurality of ~~the~~ ferromagnetic cord members.

32) (Twice Amended) A monitoring system for monitoring the approximate load-bearing capacity of an elevator rope having a plurality of longitudinally-extended load-bearing elements that supports the tension loads of the elevator system and a jacket that encompasses the load-bearing elements, said monitoring system comprising

excitation means for exciting said load-bearing elements in a manner such that said jacket is not subject to excitation;

monitoring means for monitoring the level of excitation of each of said load-bearing elements; and

correlation means for correlating the levels of excitation with the approximate load-bearing capacity of the elevator rope.

